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## **Title page**

**Running title:** A qualitative study exploring midwives' perceptions and knowledge of maternal obesity. Reflecting on their experiences of providing healthy eating and weight management advice to pregnant women.

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## Abstract

Midwives are responsible for providing advice regarding the complex issues of healthy eating and weight management during pregnancy. This study utilised an inductive data-driven thematic approach in order to determine midwives' perceptions, knowledge and experiences of providing healthy eating and weight management advice to pregnant women. Semi-structured interviews with 17 midwives were transcribed verbatim and data subjected to thematic analysis. The findings offer insight into the challenges facing midwives in their role trying to promote healthy eating and appropriate weight management to pregnant women. Three core themes were identified: 1) *"If they eat healthily it will bring their weight down"*: Midwives Misunderstood; 2) *"I don't think we are experienced enough"*: Midwives Lack Resources and Expertise, and 3) *"BMI of 32 wouldn't bother me"*: Midwives Normalised Obesity. The midwives recognised the importance of providing healthy eating advice to pregnant women and the health risks associated with poor diet and obesity. However, they reported the normalisation of obesity in pregnant women and suggested that this, together with their high workload and lack of expertise, explained the reasons why systematic advice was not in standard antenatal care. In addition, the current lack of UK clinical guidance, and thus possibly lack of clinical leadership, are also preventing delivery of tailored advice. Implementation literature on understanding the barriers to optimal healthcare delivery and informing clinical practice through research evidence needs to be further investigated in this field. This study has recommendations for policy makers, commissioners, service providers and midwives.

**Keywords:** midwives, pregnancy, obesity, healthy eating, qualitative, self-efficacy

International data indicate that 50-60% of women are overweight or obese on entering pregnancy (Martin, Grivell, Yelland, & Dodd, 2015), with the United Kingdom (UK) having the highest level of maternal obesity in Europe (Poston et al., 2016). Recent clinical data indicates that approximately 46% of women in England were classified as overweight (26%) or obese (20%) at their booking appointment (NHS Digital, 2017). Obesity in pregnancy carries significant risks for both the mother and baby including increased risk of gestational diabetes, hypertension, caesarean delivery and postoperative complications (Heslehurst et al., 2014; Scott-Pillai, Spence, Cardwell, Hunter, & Holmes, 2013). This exerts increased demands on healthcare professionals due to these associated maternal (Arrowsmith, Wray, & Quenby, 2011; Denison, Price, Graham, Wild, & Listond, 2008) and fetal complications (Van Mackelenbergh, Marotte, Alkatout, von Kaisenberg, & Eckmann-Scholz, 2016). Excessive Gestational Weight Gain (GWG) can incur equivalent health risks to obesity (Heslehurst et al., 2014); the consequences are considerable and are related to a host of adverse health effects, many of which can persist into future generations (Stupin & Arabin, 2014). Weight gain during pregnancy is also a significant predictor of long-term obesity among all women, regardless of initial body mass index (BMI) (Amorim, Rossner, Neovius, Lourenco, & Linne, 2007; Mamun et al., 2010).

In the UK, the broad scope of current clinical guidelines advocates a healthy weight before pregnancy, a healthy diet coupled with being physically active during pregnancy and returning to a healthy weight after pregnancy (National Institute for Health and Care Excellence, NICE, 2010; 2016). It is recommended that all women presenting for maternity care services should receive healthy eating advice from midwives (NICE, 2015) and those with a BMI  $\geq 30$  kg/m<sup>2</sup> should be offered a structured weight loss programme following childbirth (NICE, 2010). However, Narayanan et al. (2016) suggest that women's weight management issues and needs for support differ, depending on their BMI status. Moreover,

there is international variation in clinical guidelines for GWG; the most widely applied in clinical practice are those published by the American Institutes of Medicine (Institutes of Medicine, IoM, 2009). Despite the evidence that excessive GWG incurs additional health risks (Heslehurst et al., 2014), in the UK there is a lack of evidence-based guidelines and scientific or policy consensus on what constitutes an appropriate GWG.

Pregnancy is a unique occasion when women become more aware of health, and seek clear, credible, evidence-based information (Ferrari, Siega-Riz, Evenson, Moos, & Carrier, 2013; Olander, Atkinson, Edmunds, & French, 2012). Pregnancy is, therefore, an opportunistic period to adapt eating patterns to healthier behaviours if the current dietary pattern is not optimal. Pregnancy is often referred to as a powerful ‘teachable moment’ for behaviour change (Phelan 2010; Olander et al., 2015). However, given the complexity of issues surrounding healthy eating and weight management, maternity professionals may have difficulties incorporating such advice into their clinical appointments (Herring, Rose, Skouteris, & Oken, 2012; O’Cathain, Thomas, Walters, Nicholl, & Kirkham, 2002). It is important to investigate the nature of healthy eating and weight management advice being given to pregnant women during routine antenatal care. Potential issues with the translation of current guidance and the barriers experienced by midwives in the communication of advice must be explored. The aim of this study was to explore the perceptions, knowledge and experiences of midwives in the translation of healthy eating and weight management advice to pregnant women and, to explore their role in referring and supporting women to access or attend weight management services.

## **Methods**

There is limited previous research that has explored the experiences of midwives towards obesity in pregnant women and therefore, a qualitative methodology was adopted. An

inductive data-driven thematic analysis (TA) has been utilised for this study as it provides a theoretically flexible approach, capable of providing detailed accounts and exploring patterned meaning across the whole dataset (Braun & Clarke, 2006). Thematic analysis has been used extensively across health and wellbeing research (Braun & Clarke, 2014) and is particularly relevant to applied research settings, such as midwifery (Aquino, Edge, & Smith, 2015). This paper reports data collected with midwives delivering antenatal care from two antenatal care services in Liverpool (England, UK) and Ulster (Northern Ireland, UK). Individual interviews were undertaken to determine the midwives' knowledge and experiences towards caring for pregnant women with obesity, plus identifying any barriers to providing appropriate care, which could be used to inform the organisation of weight management services in the future. Ethical approval for the study was granted by The Health Research Authority (ID 203249; IRAS reference 303249; HSC Reference WT 16/27).

### **Participants**

Semi-structured interviews were conducted with seventeen midwives involved in antenatal care (n9 Liverpool: n8 Ulster). Midwives had a wide range of experience and expertise: six were community midwives and eleven were based within hospital antenatal clinics; some had senior roles including lecturing (1) or supervision (2) and two worked in specialist/high-risk clinics. Two had postgraduate qualifications, three had a degree and the remainder had a nursing background followed by a midwifery diploma. The mean duration of practice was 23.2 years (range 8-38 years). The number of pregnant women seen per week varied depending on role (self-reported to be between 10-70 appointments).

### **Interview Schedule**

A semi-structured interview schedule was devised by the research team, based on existing literature and discussion with key stakeholders (midwifery lecturers/ midwives/ commissioners). Questions intended to gather midwives' opinions regarding their current



knowledge and experience in giving healthy eating/weight advice to pregnant women; resources or other services used and suggestions for how this aspect of care could be improved in future (see Table 1).

Table 1

### **Procedure**

Midwifery matrons and team leaders were emailed and asked for their permission to approach and recruit midwives to take part in the study. Midwives were provided with the participant information sheet and invited into the study by the research assistant (RA). Those willing to participate were asked to sign a consent form and agree a mutually convenient interview time and location. All participants requested to complete the interview on NHS premises, during working hours. Interviews were conducted in a private room in the antenatal clinics. Interviews began with the RA introducing herself, emphasising that the research was independent of the midwifery service, and explaining that the aim of the interview was to explore their perceptions and experiences of obesity in pregnancy. The RA made memos following the interviews and discussed her reflections during supervision (with JA & LN) as an effective way of evaluating her interviewing technique and maintaining reflexivity (McGhee et al, 2007).

### **Data analysis**

The data were subjected to thematic analysis, informed by Braun and Clarke's (2006) 'step-by-step guide' (see Table 2). This process was flexible, and not linear. Discussions between the authors enhanced the definition and refinement of themes until agreement across the research team was reached.

Table 2

Two of the authors were Nutritionists (MC & MMc), having specific research interests in maternal nutrition and obesity; one author (JA) was a Registered Dietitian with 12 years'

clinical experience within maternity services and a Reader in academia; one author, the research assistant (CB) was a BSc. Food and Nutrition graduate; one author (JR) a Senior Lecturer and Registered Midwife with 13 years' experience and an active midwife practitioner in antenatal care, and one author (LN) a Senior Lecturer and Registered Health Psychologist, with clinical experience in obesity services and advance qualitative research expertise. As a multi-disciplinary research team, we acknowledged how our individual contextual standpoints and clinical/academic experiences could influence the analysis. The discussions, which occurred throughout the analytical process, promoted self-awareness and honest interpretation of the data throughout (Gerrish & Lacey, 2010).

## **Results**

The interviews lasted a mean duration of 27.5 minutes (range 10-45 minutes; the 10-minute interview was cut short and therefore incomplete due to the midwife being recalled to clinical care). Three core themes: 1) *"If they eat healthily it will bring their weight down"*: Midwives Misunderstood; 2) "I don't think we are experienced enough": Midwives Lack Resources and Expertise; and 3) "BMI of 32 wouldn't bother me": Midwives Normalised Obesity, are reported below and informed by sub-themes (see Figure 1; Thematic Representation). Verbatim quotes are provided as evidence to support the commentary.

Figure 1

### ***"If they eat healthily it will bring their weight down"*: Midwives Misunderstood.**

It is evident from this study that the midwives found it difficult to distinguish between the topics of general healthy eating, nutritional needs, GWG, and the risks associated with increased maternal BMI status. According to World Health Organisation (2016, p23) midwives have been recognised, above all other health professionals, as being responsible for

providing 'nutrition recommendations during pregnancy'. The midwives in this study recognised their role in providing 'healthy lifestyle advice' and mentioned clinical guidelines (NICE, 2010; 2016) advocating healthy eating. The majority of midwives reported descriptions of healthy eating in quite general guidance terms such as recommending to 'cut out junk food', 'make healthy choices' and to 'cut out fat and oil'. Most midwives referred to the practical aspects of food hygiene and foods to avoid during pregnancy, such as 'soft/blue cheese'. Whilst some were able to signpost women towards sources of healthy eating and dietary information, such as the NHS 'managing your weight in pregnancy' leaflet, the midwives were unable to demonstrate that women routinely received reliable pregnancy-specific advice.

*"We probably spend less time talking about diet and weight than anything else in pregnancy."*

Midwives were somewhat confused when asked about the differences between healthy eating compared to healthy weight advice. They assumed that *'they both go hand in hand'* and made assumptions such as *'if they eat healthily it will bring their weight down'*. Several stated that the two were different issues, with healthy eating regarded as general short-term advice, whereas weight management advice was more specialist structured and long-term. Some did recognise that overweight women may have a healthy diet, whilst normal weight women may not. When asked to describe what they considered a healthy weight gain in pregnancy, most midwives were hesitant or unsure.

*"That's a really hard one... because there is no UK guidance on what is a healthy weight gain."*

Evidence highlights pregnant women are at risk of nutrient deficiencies (such as iron, folate, iodine zinc, B vitamins, vitamin A, C & D and B-carotene), which can be detrimental to both

mother and baby (Gernand, Schulze, Stewart, West Jr, & Christian, 2016; Morrison & Regnault, 2016). Moreover, obese women are more likely to experience multiple nutrient deficiencies and therefore these risks are greater (Moran, Sui, Cramp, & Dodd, 2013, Horvath, Castro, Kops, Malinoski, & Friedman 2014). With the exception of iron and folic acid, most midwives did not recognise specific nutrient requirements during pregnancy and nutrient deficiencies were not acknowledged. However, when midwives realised there was a need to offer personalised dietary advice, they referred to the role of dietitians, but this support was often described as absent, or limited with no standardised care pathway utilised. Midwives were aware of some of the risks associated with increased BMI, to both the mother and baby, but were unable to demonstrate how these risks informed clinical care.

*“You can get a miscarriage, infertility, high blood pressure...you can have small babies...undiagnosed breech...there is risks of surgery...oedema, deep vein thrombosis...mobility is very difficult if you are pregnant and you are very big, that puts you at risk of blood clots, chest infections and urinary tract infections”*

When asked specifically about how they would tailor advice for women with a BMI of 32kg/m<sup>2</sup>, compared to women with a BMI of 38kg/m<sup>2</sup> the midwives struggled to answer (lots of long pauses). However, most agreed that all women needed ‘healthy eating advice’, and some acknowledged that they could offer weight management information to those with a BMI of 38kg/m<sup>2</sup>, but not for those with a BMI of 32kg/m<sup>2</sup>. Some went on to indicate differences in care pathways such as women with class II obesity (BMI > 35kg/m<sup>2</sup>) being referred to specialist clinics, receiving extra vitamins or not being able to access the midwife led unit for delivery. Despite NICE guidelines (2010) identifying pregnant women with a BMI > 30 kg/m<sup>2</sup> as a high-risk pregnancy, this risk was not fully recognised and did not translate into clinical practice.

*“If the BMI is over 40 it should be the dietitians that give advice about weight.”*

The adverse effects associated with excessive GWG have been widely reported (Fraser, et al., 2010; Narayanan et al., 2016). However, the UK has no guidance on the amount of weight that should be gained during pregnancy. A few midwives did acknowledge American guidelines (IoM, 2009) although the midwives did not act on these international recommendations. Those who referred to a figure of GWG, were uncertain with quotes ranging from: *“Can’t remember, about 12kg for whole pregnancy?”* to *“20kg?”*, *“24 - 30lbs”*, and *“3 stone is too much”*. Only one midwife mentioned that recommended weight gain should vary according to pre-pregnancy BMI, stating that normal weight women were expected to gain 2.5 stone whilst overweight women should gain less (2.5 stone represents maximum GWG recommended for normal-weight women, IoM, 2009). Currently, in the UK, clinical guidelines recommend the avoidance of weighing pregnant women, beyond the initial appointment (NICE, 2010). Indeed, the midwives in this study did not routinely monitor women’s weight status during pregnancy, they reported that they had not received any training regarding the implications of variable GWG.

*“Weight gain in pregnancy... it is a bit of a nonsense...it doesn’t tell you an awful lot.”*

Furthermore, they did not offer GWG advice to pregnant women, and this was deemed beyond their remit. Although there was recognition that further evidence and ‘consistent and clear guidance in weight gain in pregnancy is needed.’

***“I don’t think we are experienced enough”*: Midwives Lack Resources and Expertise.**

All midwives agreed with the NICE (2010; 2016) recommendation that midwives should provide healthy eating advice.

*“We are in a good position to talk to them about it and reinforce it”*

However, ‘we don’t have time’ was frequently cited as a barrier to giving in-depth advice;

*“Eh give me a break... You can’t stuff a lifetimes of education into an hour really.”*

Midwives cited the ever-increasing list of topics that they were expected to cover at this appointment.

*“you have very little time to talk about all those things... diet, sleeping and eating in general... because we are focused on the pregnancy aren’t we and the risks”*

There was a consensus regarding the culture of midwifery services focusing on key risks associated with pregnancy, with pressing concerns such as child protection and domestic violence taking priority. None of the midwives reported any recent training about healthy eating, GWG or obesity,

*“We don’t have any training (laughs) we don’t have any training or updates or anything about diet in pregnancy.”*

Although they referred to ways that they kept knowledge updated: mainly reading midwifery journals, using on-line resources (such as The Royal College of Midwives), referring to guidelines (e.g. NICE, England; GAIN, Ulster) or having conversations with colleagues, they did not “read any nutrition journals per se” or “seek out gestational weight gain” information. Overall, the midwives acknowledged their lack of expertise regarding weight management, weight gain and dietary advice:

*“I think overweight women do need weight management advice and some sort of structure throughout pregnancy...I don’t think that’s within the midwifery remit cause I think that is more specialised...I think it’s unfair to ask midwives to have that knowledge...We should be able to hand that on to somebody else, I do find it difficult*

*for women who are obese to give them structured advice...I don't think we are experienced enough to do food diaries or anything like that and really tailor diets”*

Midwives could cite many services available to support obese pregnant women, including specialist services such as consultant-led clinics and specialist midwife referral; community services such as Mamafit (Liverpool); weight management services (including ‘Aintree LOSS’ in Liverpool and ‘Weigh to a healthy pregnancy’ in Ulster), dietetics or General Practitioners. Several midwives actively encouraged women to attend Slimming World (a commercial programme) over and above NHS weight management services. However, on probing, they were unclear on what these programmes entailed or what advice was provided (commercial or NHS). The midwives reported confusion on the role of weight management services for obese pregnant women and were unclear on the BMI thresholds for a referral. Moreover, some thought that, due to service changes, they did not ‘have access’ to a dietitian. Others believed that the women should seek a referral from their GP or would self-refer. Most midwives reflected on their diminished responsibility to women who were obese if they made onwards referrals to specialist clinics (e.g. obstetric care), assuming that the specialist midwife and anaesthetic review would include assessment and advice regarding diet and weight management issues. Therefore, some thought that referral to specialist services (e.g. obstetric assessment) included or superseded referral to additional weight management services.

**“BMI of 32 wouldn't bother me”: Midwives Normalised Obesity.**

The prevalence of adult obesity is increasing, with many pregnant women being classified as overweight or obese (NHS Digital, 2017). A challenge for both the pregnant women and the midwives is the socio-cultural acceptance that excessive GWG is part of pregnancy, paired

with the belief that pregnancy is an excuse to eat significantly more. Indeed, all midwives voiced that pregnant women ‘should not eat for two’, however, this is very much related to the quantity and not the quality of food consumed. As reported by other health professionals and the general public (Johnson, Cooke, Croker, & Wardle, 2008), the midwives referred to the normalisation of obesity in society, which in turn, has affected their approach to clinical care.

*“BMI of 32 wouldn’t bother me that much because most women are in this category”*

However, midwives were very conscious of the stigma associated with labelling someone directly as obese and therefore, as previously documented (Willcox, et al, 2012), constrained by social etiquette, were reluctant to approach the topic of obesity for fear of causing offence, and thus negatively impacting on their ‘patient-professional’ relationship.

*“Sometimes women will get offended even when you mention the word obese”*

As such midwives often avoided providing specific advice or offering onwards referral to dietetic or weight management services, unless this was raised by the pregnant woman. Most reported that they received very few enquiries about weight gain in pregnancy, from either normal or overweight women. Consistent with the literature (Johnson, Beeken, Croker & Wardle 2014), there was a feeling that most women did not recognise they were overweight or they would rather not know. When the midwives, did make onward referrals to weight management services this was perceived as a negative outcome.

*“in way, she (women with BMI > 38) is being punished cos she is made to come to the hospital instead of having her care in the local community”*

These negative perceptions were often reinforced by the women’s own (lack of) acknowledgement of obesity and subsequent behaviours.



*“The healthy weight programme is good but they don’t want to avail of it and I’m sure they don’t all avail of it.....even when they do go, I’m not sure they take on board what they have been told”*

Moreover, the midwives reflected on those women who were already mothers and, during previous pregnancies, weight and dietary issues had not previously been discussed.

*“Some women have always been big...and they have had babies before that they didn’t have any problems with, so they don’t understand what the fuss is about”*

Regular weighing and ‘singling-out’ for a referral to specialist clinics were seen as humiliating and unwelcomed. In contrast, recent research has highlighted that women expect to be weighed during pregnancy (Swift, et al, 2016) and may actually want access to specialist advice and services (Allen-Walker et al, 2016; Jelsma et al, 2016). The reluctance of midwives to approach the subject and/or inform them of services available may result in high-risk women being denied access to the appropriate care that they both need and want.

## **Discussion**

Midwives in this study were open to the idea, in the future, of offering detailed and tailored dietary and weight management advice. They justified their current clinical practice by referring to practical limitations. Similar findings have been reported elsewhere (Arrish, Yeatman, & Williamson, 2016; Heslehurst et al., 2011; Olander et al, 2011). However, it is noteworthy that aspects of avoidance and diminished responsibility may also influence midwives’ behaviour.

The midwives recognised the importance of providing healthy eating advice to pregnant women and the health risks associated with poor diet and obesity. However, they also referred to the normalisation of obesity in pregnant women (with direct reference to rates of obesity during pregnancy) and suggested that this, together with their high workload and

lack of resources, explained the reasons why systematic advice was not part of standard antenatal care. Midwives and pregnant women, of all BMI categories, should be encouraged to access and implement the most up-to-date evidence base, and need to fully personalise healthy eating and weight management advice (NICE, 2016; Swift et al., 2017). Midwives are capable of engaging pregnant women in health behaviour change discussions (e.g. smoking cessation advice, Reardon & Grogan, 2016), and are aware of the health risks associated with obesity (and some aspects of a poor diet). Their motivation towards offering healthy eating and weight management support is broadly supportive.

However, midwives' perceived self-efficacy (Bandura, 1977; 1986; 1997), their sense of confidence (Lauder et al. 2008) in delivering healthy eating and weight management advice may be deflated by their lack of knowledge and access to reliable resources. This may in turn encourage them to avoid engaging the women in a conversation, through fear that they may not be able to respond to their questions, or indeed offend the women. The stigma associated with discussing obesity and weight management opportunities creates social barriers (Singleton & Furber, 2014) which in turn reinforces the avoidance of discussing the topic. Recently Swift and colleagues (2016) reported that "pregnant women reported confusion, distrust and negative effects of weight management interactions" and over two-thirds of women did not receive advice about weight. In addition, perceived lack of time limit engagement further (see Behaviour Change Wheel, Michie, van Stralen, & West, 2011).

To communicate effectively midwives need to be supported to promote general healthy eating, nutrition and appropriate weight management advice. They need to understand the differences in advice required for those at high risk, such as those with high BMI or with nutritional deficiencies. Self-efficacy can be improved by increasing knowledge, training, experience, and/or familiarity with a task. Improving midwives beliefs and increasing self-efficacy regarding their capacity to engage in discussions regarding

healthy eating and weight management, would be a first step towards supporting midwives to incorporate this topic into their communication with pregnant women.

Regardless of individual self-efficacy, the midwives do not appear to be supported to engage in such tailored conversations. They lack cues to action (a 'cue to action' must also be present in order to trigger a health-promoting behavior, see Health Beliefs Model, Painter, Borba, Hynes, Mays, & Glanz, 2008). Engagement in this topic, is not enforced or monitored, and as such, there are no consequences for not discussing healthy eating or weight management with pregnant women. For example this can be demonstrated by the reference to a 'lack of UK clinical guidance' on weight management during pregnancy, and thus possibly a lack of clinical leadership (as perceived to be linked to the contractual focus of commissioned services).

Individual midwives will not succeed without support. A system-wide intervention is needed to address these issues (a similar approach has been raised in other healthcare fields, see Barker, Atkins & de Lusignan, 2016). Clinical leads, service directors, commissioners, policy makers and professional bodies should prioritise maternal diet and weight management, creating clear care pathways, guidance and support, reliable resources and offer a clear approach to training and development across this field. There is a need to develop and update guidance regarding the monitoring of weight gain, healthy eating and personalised advice for women, pre, during and post-pregnancy. It would be helpful if clinical recommendations referred to appropriate GWG, which are based on pre-pregnancy BMI. The implementation literature (Grimshaw, Eccles & Tetroe, 2004; Shaw, Cheater, Baker et al, 2005) also provides some insight as to how to tackle such barriers to optimal health care delivery (Cochrane, Olson, Murray, Dupuis, Tooman, & Hayes, 2007).

The current study has attempted to limit researcher bias from analysis through agreement of findings between authors. We adopted a reflexive approach to mitigate ways in which we (the multi-disciplinary authors) and the research process (qualitative interviews and analysis) have shaped the collected data, including the role of prior assumptions and experience. However, we acknowledge that the nature of qualitative research means that the results remain subjective. It should be acknowledged, the participants included in this study were recruited through two sites, one in North-West England and one in Ulster, Northern Ireland, and therefore may not represent the perception and experiences of midwives from other UK services or indeed internationally.

### **Conclusion**

Midwives have an essential role in supporting pregnant women to mitigate the risks identified with poor nutrition, excessive GWG and obesity. Implementing evidence-based practice and research findings regarding healthy eating, weight gain and obesity into midwifery care has been identified as a challenge. There is a mismatch between what the evidence-base tells us, what directive policy and clinical guidelines provide and what midwives actually do in practice. Implementation literature on understanding the barriers to optimal health care delivery and informing clinical practice through research evidence (Grimshaw, Eccles & Tetroe, 2004; Shaw, Cheater, Baker et al, 2005) needs to be further investigated in this field.

### **Key messages**

- Midwives lack the confidence and skills to discuss pregnancy-specific healthy eating, and weight management advice; consequently, they often struggle to view this role as their responsibility.
- There is a lack of organisational support regarding midwifery training, access to specialised care and specific care pathways for pregnant women with obesity

- Healthcare commissioners and policy makers need to prioritise the topic of maternal nutrition and weight management, recognising the risks involved and ensuring clear clinical guidelines are in place.

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Table 1: Sample of interview questions

<b>Interview questions</b>
<ul style="list-style-type: none"><li>• What advice do you give to pregnant women regarding lifestyle advice?</li><li>• In terms of diet and healthy eating specifically, what advice do you provide?</li><li>• Which resources do you access or encourage patients to access for up-to-date healthy eating information?</li><li>• How do you keep your knowledge about healthy eating up-to-date?</li><li>• How would you define healthy weight gain in pregnancy?</li><li>• What is your opinion regarding NICE recommending that midwives should be advising pregnant women about healthy eating and healthy weight gain?</li><li>• How confident do you feel discussing weight and healthy eating with pregnant women?</li><li>• How can midwives be supported to provide patients with healthy eating weight management advice?</li></ul>

**Table 2 Analytical Procedure**

<b>The Application of Step-by-step Thematic Analysis (Braun &amp; Clarke, 2006)</b>	
1. "Familiarising yourself with your data"	The digital interview recordings were transcribed verbatim (CB), following which, the authors (MMC, LN, MC, JA) read and re-read the transcripts in order to become familiar with the breadth and depth of data being discussed, initial ideas were noted.
2. "Generating initial codes"	Initial codes were generated systematically on a line-by-line basis relevant to the research question (MMC, LN, MC, JA). These codes were collated across the entire data set.
3. "Searching for themes"	Codes were collated into potential themes (MMC, LN, MC, JA).
4. "Reviewing themes"	<p>Creation and discussion of themes occurred through face-to-face and skype discussions between the authors, which ensured that themes were applicable to both the related coded extracts and the dataset as a whole (MMC, LN, JR, MC, JA). Our analytical strategy was inductive and data-driven, focusing on identifying and discussing the salient themes repeated across and within transcripts.</p> <p>Themes were reworked and subsequently validated across the data, transcript quotations were selected to illustrate the themes identified. Finally, a thematic map was generated (LN, JA).</p>
5. "Defining and naming themes"	Themes were defined. The overall story of the analysis was drafted (MMC, LN, JA).
6. "Producing the report"	The analysis was refined, linking back the findings to previous literature, the research question and considering the broader impact of the findings. (MMC, LN, CB, JR, MC, JA)
Note: author initials in brackets to indicate task completed	



**Figure 2 Thematic Representation**